

PATENT COOPERATION TREATY

125 30/9/05 "Pay additional search fees?"
✓ A05122

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

To:
MARKS & CLERK
Attn. Jenkins, Richard Gavin
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UNITED KINGDOM

INVITATION TO PAY ADDITIONAL FEES

(PCT Article 17(3)(a) and Rule 40.1)

Applicant's or agent's file reference RJ/P89586PWO		Date of mailing (day/month/year) 31/08/2005
International application No. PCT/GB2005/001138	PAYMENT DUE within ONE MONTH from the above date of mailing International filing date (day/month/year) 18/03/2005	
Applicant ZIPHER LIMITED		

1. This International Searching Authority

- (i) considers that there are 6 (number of) inventions claimed in the international application covered by the claims indicated ~~XXXX~~ on the extra sheet:

and it considers that the international application does not comply with the requirements of unity of invention (Rules 13.1, 13.2 and 13.3) for the reasons indicated ~~XXXX~~ on the extra sheet:

- (ii) ☒ has carried out a partial international search (see Annex) ☐ will establish the international search report on those parts of the international application which relate to the invention first mentioned in claims Nos.:
see annex

- (iii) will establish the international search report on the other parts of the international application only if, and to the extent to which, additional fees are paid


2. The applicant is hereby **invited**, within the time limit indicated above, to pay the amount indicated below:

EUR 1.550,00 x 5 = EUR 7.750
Fee per additional invention number of additional inventions total amount of additional fees

Or, _____ x _____ = _____

The applicant is informed that, according to Rule 40.2(c), the payment of any additional fee may be made under protest, i.e., a reasoned statement to the effect that the international application complies with the requirement of unity of invention or that the amount of the required additional fee is excessive.

3. ☐ Claim(s) Nos. _____ have been found to be unsearchable under Article 17(2)(b) because of defects under Article 17(2)(a) and therefore have not been included with any invention.

Name and mailing address of the International Searching Authority  European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Eva San Miguel
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**Annex to Form PCT/ISA/206
COMMUNICATION RELATING TO THE RESULTS
OF THE PARTIAL INTERNATIONAL SEARCH**

International Application No
PCT/GB2005/001138

1. The present communication is an Annex to the invitation to pay additional fees (Form PCT/ISA/206). It shows the results of the international search established on the parts of the international application which relate to the invention first mentioned in claims Nos.:
see 'Invitation to pay additional fees'
2. This communication is not the international search report which will be established according to Article 18 and Rule 43.
3. If the applicant does not pay any additional search fees, the information appearing in this communication will be considered as the result of the international search and will be included as such in the international search report.
4. If the applicant pays additional fees, the international search report will contain both the information appearing in this communication and the results of the international search on other parts of the international application for which such fees will have been paid.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 774 154 A (UNDERWOOD ET AL) 30 June 1998 (1998-06-30)	1
A	column 1, line 33 - line 55 column 4, line 30 - line 47 figures 1,2 -----	2-37, 39-47
A	EP 0 322 131 A (HEWLETT-PACKARD COMPANY) 28 June 1989 (1989-06-28) column 4, line 52 - column 5, line 12 -----	1-37, 39-47
A	US 5 801 735 A (LORENZE, JR. ET AL) 1 September 1998 (1998-09-01) column 2, line 17 - line 60 column 4, line 7 - line 33 -----	1-37, 39-47
A	US 5 343 226 A (NIEDERMEYER ET AL) 30 August 1994 (1994-08-30) column 1, line 27 - line 61 figure 1 -----	1-37, 39-47

☐ Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

° Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- * & * document member of the same patent family

INVITATION TO PAY ADDITIONAL FEES

PCT/GB2005/001138

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-37, 39-47

OBJECTIVE PROBLEM : supplying liquid from a "container" to a "reservoir"; SOLUTION : connection means connecting the reservoir to a position within the container that is immersed in the contained liquid; and means for alternately pressurising and depressurising the reservoir, the arrangement being such that when the reservoir is pressurised gas is forced into the container through the connection means and accumulates above the liquid in the container, and such that when the reservoir is depressurised accumulated gas in the container forces liquid through the connection means to the reservoir;

2. claim: 38

OBJECTIVE PROBLEM : ink container which does not leak; SOLUTION : the container is sealed and contains a quantity of ink and a volume of gas, the gas being at a pressure, when the container is sealed, less than atmospheric pressure;

3. claims: 48-57

OBJECTIVE PROBLEM : how to pressurise ink for ejection; SOLUTION : means for applying a first pressure pulse to ink within the reservoir to cause ink to be discharged from said at least one orifice, the means for applying a first pressure pulse comprising a supply of compressed gas connected to the inlet of a controllable valve, and control means arranged to open and close said valve, the means for applying a first pressure pulse further comprising a second, passive valve, having an inlet connected to the outlet of the controllable valve, the second valve being adapted to initially allow gas flow towards the reservoir when the second valve inlet is exposed to pressurised gas from the supply as a result of the controllable valve being opened, and then to close automatically after a period of time in response to continued exposure, to prevent further flow, and to remain closed until the pressure at the inlet to the passive valve drops below a predetermined threshold, the outlet of the second valve being connected to the reservoir to apply said first pressure pulse to the ink;

4. claims: 58-59

OBJECTIVE PROBLEM : powering an ink jet printer; SOLUTION : a compressed gas supply; a controllable valve, having an inlet connected to the compressed gas supply and an outlet connected to the gas curtain generating means; and control means arranged to control operation of the valve to control supply of compressed gas to generate the air curtain, wherein the pump is a pneumatic pump, having a compressed gas inlet connected to the outlet of the controllable valve, and the control means is arranged to operate the controllable valve to generate pressure pulses to simultaneously operate the pump and generate the air curtain;

5. claims: 60-64

OBJECTIVE PROBLEM : pouring ink from a bottle ?; SOLUTION : intermittent flow is a known natural phenomenon : see "gluck-gluck", especially OED 1880 quotation : Entry printed from Oxford English Dictionary Online© Oxford University Press 2005

gluck, n. SECOND EDITION 1989(glk). 'echoic: cf. GLUG n.2!

An inarticulate sound supposed to be expressed by this spelling. So with reduplication gluck-gluck. 1880 Chamb. Jrnl. No. 202. 635 It is as when we pour liquid from a full bottle; at first it runs intermittently, with a 'gluk-gluk';

i.e. means (the physics of fluids and gravity) for alternately creating a pressure difference between the reservoir and the container in a first direction, such that ink flows from the container, through the connection means, and into the reservoir, and creating a pressure difference between the reservoir and the container in a second, opposite direction such that gas flows from the reservoir, through the connection means, and into the container and accumulates above the contained ink;

6. claims: 65-75

OBJECTIVE PROBLEM : pipe topology for ink jet printer;
SOLUTION : a main body member and at least one auxiliary body member mounted on the main body member to form an assembly such that an ink reservoir cavity and a pump cavity are defined within the assembly, the pump cavity enclosing a displaceable element which divides the pump cavity into first and second chambers, the first chamber being in communication with the ink reservoir cavity and a pressurised gas inlet via a first conduit, and the second chamber being in communication with an ink inlet via a second conduit which includes a one-way valve that prevents flow of ink from the second chamber to the ink inlet, and the second chamber being in communication with the ink reservoir cavity via a third conduit which includes a second one-way valve that prevents flow of ink from the ink reservoir cavity to the second chamber, the displaceable element being arranged such that pressurisation of the first conduit to pressurise the ink reservoir cavity displaces the element to pump ink from the second chamber to the ink reservoir cavity.

The subject matter common to all claims is none.

The application lacks unity within the meaning of Rule 13.1 PCT because the independent claims represent technically different solutions to unrelated problems.

The special technical features and corresponding objective problems of the separate inventions are as set out above.

Since the special technical features are neither identical nor corresponding (i.e. they cannot function in an equivalent, complementary or cooperative manner with the special technical feature(s) of another invention or are not specially adapted to a special technical feature of another invention), there are no corresponding special technical features shared by all independent claims of the invention.

Therefore, the above groups of inventions are not so linked as to form a single general inventive concept (Rule 13.1 PCT).

Patent Family Annex

Information on patent family members

International Application No

PCT/GB2005/001138

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5774154	A	30-06-1998	NONE	
EP 0322131	A	28-06-1989	US 4831389 A	16-05-1989
			CA 1308955 C	20-10-1992
			DE 3879140 D1	15-04-1993
			DE 3879140 T2	16-09-1993
			EP 0322131 A1	28-06-1989
			HK 32195 A	17-03-1995
			JP 2002013 A	08-01-1990
			JP 2732871 B2	30-03-1998
			KR 9107325 B1	25-09-1991
			SG 3495 G	16-06-1995
			US 4999652 A	12-03-1991
US 5801735	A	01-09-1998	NONE	
US 5343226	A	30-08-1994	US 6234617 B1	22-05-2001
			US 6033061 A	07-03-2000
			US 2001013882 A1	16-08-2001